

INSTALLATION RESTORATION PROGRAM

COMMUNITY RELATIONS PLAN



MINNESOTA AIR NATIONAL GUARD
148th FIGHTER WING

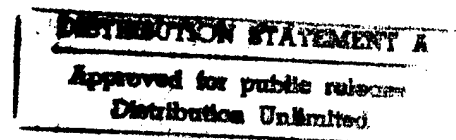
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EXECUTIVE SUMMARY

This Community Relations Plan has been developed as part of the Air National Guard's Installation Restoration Program for the 148th Fighter Wing, Minnesota Air National Guard, Duluth, Minnesota. The Plan is part of the ongoing commitment by the Air National Guard to keep residents of the Duluth area informed about environmental restoration activities at the Duluth International Airport. The Plan describes the Installation Restoration Program and how it relates to the Minnesota Air National Guard, the environmental issues expressed by local residents, and the actions the Air National Guard will establish to maintain open and effective communications with its Duluth neighbors.

The Air National Guard's Installation Restoration Program is a nationwide effort to identify and resolve environmental problems that may have resulted from past practices or accidents on Air National Guard installations. These practices may have occurred years ago when the Air National Guard had limited knowledge of the environmental consequences associated with accidental spills or routine disposal of waste oils, cleaning solvents, fuels, and other substances.

The Air National Guard's Installation Restoration Program consists of several phases. The typical phases are:

- Preliminary Assessment,
- Site Investigation,
- Remedial Investigation/Feasibility Study,
- Decision Document,
- Remedial Design,
- Remedial Action, and
- Site Close-out (No Further Action Decision Document)

Based on preliminary assessment activities conducted at the facility in 1982, the following five sites were identified for further investigation and possible remedial action under the Comprehensive Environmental Response Compensation and Liability Act:

- Site 2, Fire Training Areas 1 and 2,
- Site 3, Defense Reutilization and Marketing Office (formerly Defense Products and Disposal Office) Storage Area “C,”
- Site 4, Fuel Storage Area,
- Site 8, Old Defense Property Disposal Office Storage Area, and
- Site 10, Low-Level Radioactive Waste Disposal.

Between 1988 and 1993 ten sites were identified for further investigation and potential remedial action under the Resource Conservation and Recovery Act:

- Site 17, Base Supply Storage Area,
- Site 18, Hazardous Waste Storage Area,
- Site 19, Polychlorinated Biphenyl Storage Facility,
- Site 20, Runway Joint Sealing Tar Drum Disposal Site,
- Site 21, Imhoff Tank Treatment System,
- Site 22, Building 125 and Nondestructive Inspection Septic System,
- Site 23, Aircraft Parking Ramp,
- Site 24, Engine Run Up and Test Pad,
- Site 25, Old Motor Pool Area, and
- Site 26, Ramp Disposal Area.

To meet the information desires of the community and to allow the Duluth, Minnesota area residents to participate in the decision-making process, the Air National Guard will schedule community relations activities throughout the Installation Restoration Program process at the Minnesota Air National Guard Base, as required.

Community relations activities may include:

- public information files,
- administrative record,
- public comment periods,

- public notices,
- public meetings,
- fact sheets,
- mailing lists, and
- the formation of a Restoration Advisory Board.

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1.0 INTRODUCTION

This Community Relations Plan has been developed as part of the Air National Guard's Installation Restoration Program for the 148th Fighter Wing, Minnesota Air National Guard, Duluth, Minnesota. The Plan is part of the ongoing commitment by the Air National Guard to keep residents of the Duluth area informed about environmental restoration activities at the Air National Guard installation located at the Duluth International Airport. The Plan describes the Installation Restoration Program and how it relates to the Minnesota Air National Guard, the environmental issues expressed by local residents, and the actions the Air National Guard will establish to maintain open and effective communications with its Duluth neighbors.

Many Duluth area residents helped the Air National Guard with the development of this Community Relations Plan. They willingly discussed their environmental concerns and, specifically, their concerns related to operations at the Minnesota Air National Guard. Those interviewed included local officials, private citizens, and representatives of environmental and conservation groups.

Because of the information provided by these interested individuals, this plan meets the regulations and guidance of:

- the National Contingency Plan,
- the Comprehensive Environmental Response, Compensation and Liability Act, commonly known as Superfund, as amended by the Superfund Amendments and Reauthorization Act of 1986,
- the National Environmental Policy Act,
- applicable laws and regulations of the State of Minnesota,
- *Public Affairs Guidance on National Guard Bureau Environmental Programs*, 1994, issued by the National Guard Bureau, Office of Public Affairs, Environmental Programs Division, and
- *Community Relations in Superfund: A Handbook*, January 1992, issued by the U.S. Environmental Protection Agency.

This Community Relations Plan is available for public review at the Duluth Public Library, Duluth, Minnesota, and at the base during normal business hours.

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2.0 INSTALLATION RESTORATION PROGRAM

The Air National Guard's Installation Restoration Program is a nationwide effort to identify and resolve environmental problems that may have resulted from past practices or accidents on Air National Guard installations. These practices may have occurred years ago, when the Air National Guard had limited knowledge of the environmental consequences associated with accidental spills or routine disposal of waste oils, cleaning solvents, fuels, and other substances.

The objectives of the Installation Restoration Program are to:

- identify former waste, spill, storage and disposal sites,
- evaluate the extent and nature of any contamination, and
- initiate the appropriate remedial action.

If substances posing an immediate threat to human health or the environment are discovered, steps are taken immediately to control them.

The Air National Guard's Installation Restoration Program consists of several phases. The typical phases are:

- Preliminary Assessment,
- Site Investigation,
- Remedial Investigation/Feasibility Study,
- Decision Document,
- Remedial Design,
- Remedial Action, and
- Site Close-out (No Further Action Decision Document).

A **Preliminary Assessment**, the first phase of the program, is where the Air National Guard will determine whether past operations or accidents have contributed to any contamination at the installation. This assessment identifies where environmental issues at the installation might exist. The assessment information is gathered through interviews with past and present installation employees, and an extensive review of historical and operational records.

If the potential for contamination exists, a **Site Investigation** is conducted. This involves collecting and analyzing soil, groundwater (water found below the land surface in the zone of saturation; it can be a source of water for artesian wells and springs), and surface water samples from an identified area. The analysis determines the presence or absence of possible contamination.

If substances exist that pose a threat to human health, public welfare, or the environment but do not require an immediate response, the Air National Guard begins a **Remedial Investigation**. This phase involves a more detailed inspection and analysis than that conducted during the **Site Investigation**. In this phase the Air National Guard defines the precise nature and extent of the environmental impact. If groundwater is affected, extensive hydrogeological studies (the study of the geology of groundwater, with particular emphasis on the chemistry and movement of water) are conducted to learn the water flow direction and speed. This information is necessary for the development of remedial alternatives in the **Feasibility Study**.

The **Feasibility Study** is conducted to identify and develop management alternatives, which may range from no action to full remediation. The Air National Guard evaluates these alternatives according to technical practicality, cost effectiveness, regulatory requirements, environmental impact and community relations. A proposed remedial alternative is then identified and the public is invited to comment on the proposed action. **Feasibility Study** activities begin during the **Remedial Investigation** phase.

A **Decision Document**, stating the chosen remedial alternative from the **Feasibility Study**, is written at this point.

The **Remedial Design** phase comes after a decision has been made, with public participation, on which remedial alternative to pursue. The **Remedial Design**, developed on the basis of the **Feasibility Study**, is a detailed design of the selected **Remedial Action**. The design includes specifications and design drawings. The **Remedial Design** is used to implement the **Remedial Action**.

During the **Remedial Action** phase, the Air National Guard begins to clean up the environmental impact to a level that will protect public health, public welfare, and the environment. Covering a landfill with an impermeable cap (a cover through which substances cannot pass), pumping and treating impacted groundwater, or installing a new water distribution system are a few examples of

remedial measures that might be selected. The Air National Guard welcomes and encourages public participation throughout this process. Resident concerns are an important part of all Installation Restoration Program decision-making.

If the identified sites do not contain substances that pose a threat to human health or the environment, the information gathered is used to support a **No Further Action Decision Document**. A **No Further Action Decision Document** is also routinely issued at the conclusion of any remediation (**Site Close-out**). The **No Further Action Decision Document** is issued to state regulatory agencies for agreement. The document is then released to the public for a 30-day comment period.

Under special circumstances, other Installation Restoration Program activities are conducted.

- A **Focused Feasibility Study** is a feasibility study of one or more sites. A site may be a particular medium such as soil or groundwater or may be one source such as a waste lagoon or spill area. The purpose of the **Focused Feasibility Study** is to develop a range of measures that may be used to remediate contamination at the site. A **Focused Feasibility Study** is conducted when circumstances limit the number of available options and therefore the number of available alternatives. This type of study focuses on two or three alternatives.
- If it is determined that substances posing an immediate threat to public health, public welfare or the environment do exist, an **Interim Removal Action** is performed. This prompt action is taken to control, contain or mitigate the threat.

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3.0 SITE DESCRIPTIONS AND STATUS

The Minnesota Air National Guard 148th Fighter Wing is located at the Duluth International Airport, Duluth Minnesota. Past base operations involved the use and disposal of materials and wastes that were subsequently categorized as hazardous. The main operations of the base that used and disposed hazardous materials and wastes include aircraft maintenance, aerospace ground equipment, vehicle maintenance, fuels management, nondestructive inspection, munitions storage, paint shop, heating plant, hangars, plumbing shop, air conditioning shop, battery shop, and power production.

Based on preliminary assessment activities conducted at the facility in 1982, the following five sites were identified for further investigation and possible remedial action under the Comprehensive Environmental Response Compensation and Liability Act:

- Site 2: Fire Training Areas 1 and 2,
- Site 3: Defense Reutilization and Marketing Office Storage Area "C,"
- Site 4: Fuel Storage Area,
- Site 8: Old Defense Property Disposal Office Storage Area, and
- Site 10: Low-Level Radioactive Waste Disposal.

Between 1988 and 1993 10 sites were identified for further investigation and possible remedial action under the Resource Conservation and Recovery Act:

- Site 17: Base Supply Storage Area,
- Site 18: Hazardous Waste Storage Area,
- Site 19: Polychlorinated Biphenyl Storage Facility,
- Site 20: Runway Joint Sealing Tar Drum Disposal Site,
- Site 21: Imhoff Tank Treatment System,
- Site 22: Building 125 and Nondestructive Inspection Septic System,
- Site 23: Aircraft Parking Ramp,
- Site 24: Engine Run Up and Test Pad,

- Site 25: Old Motor Pool Area, and
- Site 26: Ramp Disposal Area.

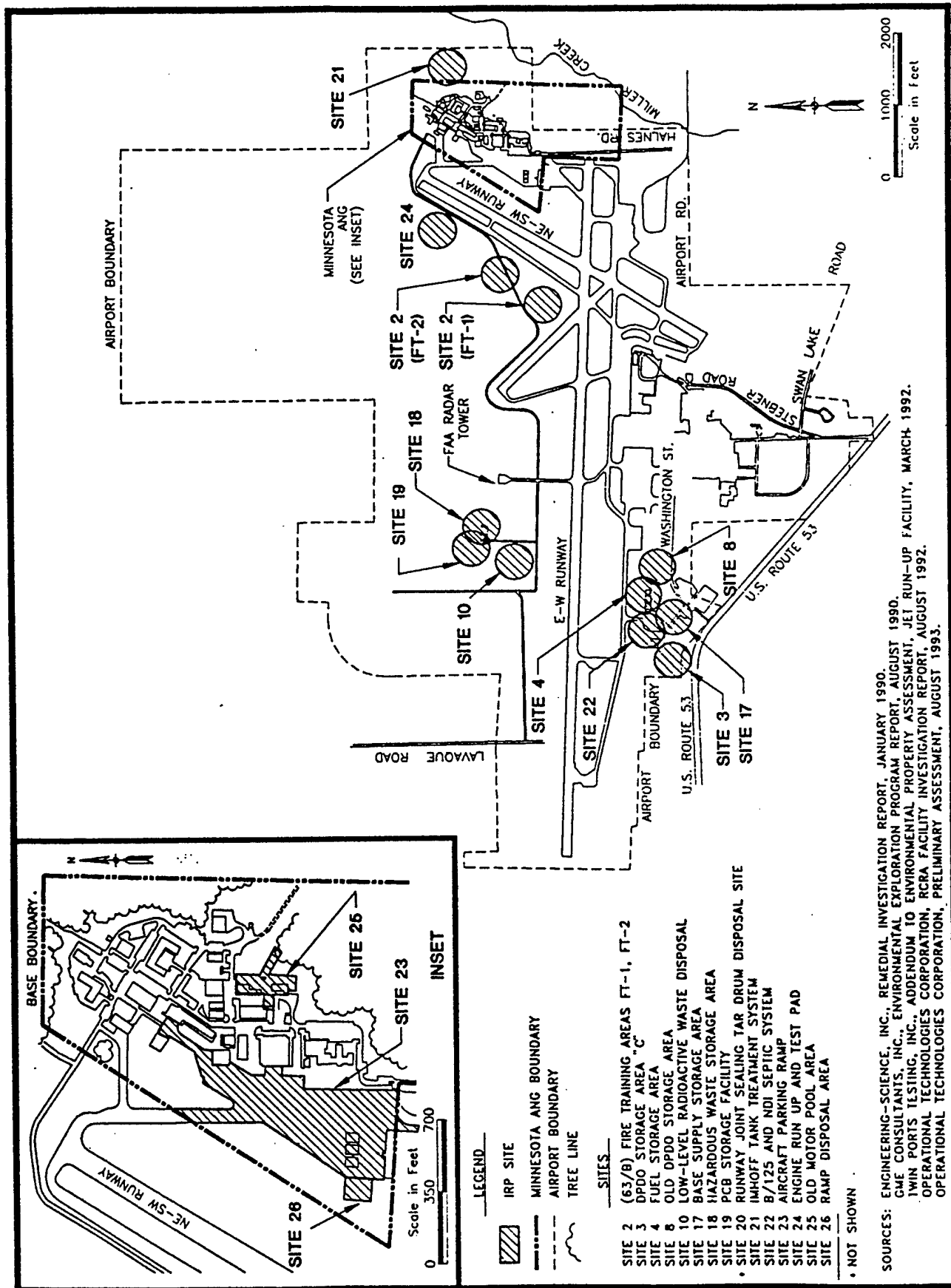
Figure 3-1 shows the locations of the 15 Installation Restoration Program sites (Sites 2, 3, 4, 8, 10, and 17 through 26) at the base that the Air National Guard is responsible for investigating and remediating, if necessary. (Site 2 includes two former fire-training areas [FT-1 and FT-2] for which Installation Restoration Program investigations have been conducted.) Descriptions of these 15 sites and a summary of activities performed to date at each are presented below.

3.1 SITE 2: FIRE TRAINING AREAS 1 AND 2

Site 2 consists of two former fire-training pits (FT-1 and FT-2) that are located north of the main east-west runway. The area was used for fire training from approximately 1951 to the late 1980s. Waste oils and fuels were burned as frequently as once per week and the fires were extinguished with protein-based foam, aqueous film-forming foam, or chlorobromomethane.

Based on the results of previous investigative activities at the site, it was determined that soil contamination was not present at FT-1. The alternatives developed during the Feasibility Study recommended a “No-Action” alternative for FT-1. Minnesota Pollution Control Agency staff have agreed that “No-Further-Action” is required for FT-1.

Investigative activities have identified volatile organic compound contaminated soils and groundwater at FT-2. As part of an interim response action, 6,067 cubic yards of contaminated soil were excavated and thermally treated in 1995. Recent groundwater sampling has indicated that the chlorinated compounds previously detected in site groundwater have reduced to concentrations less than Maximum Contaminant Levels or Health Risk Limits. Additional groundwater monitoring data are needed to confirm conditions prior to site closure. A taxiway to provide access to the new Northwest Airlines, Inc. maintenance facility is to be constructed on Site 2.



3.2 SITE 3: DEFENSE REUTILIZATION AND MARKETING OFFICE STORAGE AREA "C"

Site 3 covers approximately five acres. The site is located south of the western end of the east-west taxiway and lies west of the access road near the western end of Washington Street. The contamination source area is a small storage area formerly called the Defense Property Disposal Office Storage Area "C." A drainage ditch borders Storage Area "C" to the east and north.

From 1965 to 1980 waste petroleum, oils and lubricants, waste solvents, and chemicals were stored on a storage pad located to the southwest of the Defense Reutilization and Marketing Office building. The maximum number of containers stored at any time was 100 55-gallon drums. This site was the location of minor drum leaks in the past. No major spills have been recorded. The storage area is no longer used for the temporary storage of drums.

Investigations at Site 3 have identified volatile organic compounds, total petroleum hydrocarbons, and pesticide contamination of soil. Volatile organic compounds and semi-volatile organic compounds were found in groundwater. The Air National Guard is currently remediating contaminated soils at Site 3 using aboveground bioremediation technology. The Air National Guard will conduct quarterly groundwater monitoring at Site 3 for a period of three years. Monitoring data will be reviewed on a quarterly basis by the Minnesota Pollution Control Agency. If the monitoring data indicate that a contaminant plume is migrating off site, and is impacting human health and/or the environment of concentrations exceeding specified applicable or relevant and appropriate requirements (ARARs), then active groundwater remediation may be required. A Decision Document for the site has been prepared.

3.3 SITE 4: FUEL STORAGE AREA

Site 4 consists of approximately 15 acres located east of Site 3 and north of Washington Street. The site is occupied by three aboveground storage tanks with a total capacity of approximately 1,000,000 gallons. The tanks were constructed in the 1950s. Two of the tanks are used for the storage of JP-4 jet fuel. The third tank contained fuel oil #2. However due to a probable release from this tank, it was taken out of service in 1982. The exact location of the suspected leak has not been determined. The tanks are surrounded by a dike which has the capacity to contain 110 percent of the volume of the tankage.

Sediment samples collected at the site indicated the presence of fuel oil constituents, benzene, toluene, xylene, ethylbenzene, diesel range organics and lead. Significant levels of these compounds are located in the drainage ditch which is north of the storage tanks. Groundwater contamination from volatile organic compounds and total petroleum hydrocarbons has been detected in monitoring wells installed at the site. However, this contamination is considered low level based on the most recent monitoring data.

The Air National Guard is currently remediating contaminated soils and sediment at Site 4 by incineration. The incineration process and treatment residuals will be required to meet Minnesota Pollution Control Agency leaching based cleanup goals and permit requirements.

The Air National Guard will implement a groundwater monitoring program that will include collection of groundwater samples from the existing monitoring well network on a quarterly basis for a period of three years. If the monitoring data indicate that a contaminant plume is migrating off site, and is impacting human health and/or the environment at concentrations exceeding specified ARARs, then active groundwater remediation may be required. A Decision Document has been prepared.

3.4 SITE 8: OLD DEFENSE PROPERTY DISPOSAL OFFICE STORAGE AREA

Site 8 (Old Defense Products and Disposal Office Storage Area) is located south of the main east-west runway and north of Washington Street, near the southern boundary of the airport. The site encompasses approximately 15 acres which were used from 1950 until 1964 as the base salvage yard and as the Defense Products and Disposal Office storage yard. Materials handled at this storage area included transformers containing polychlorinated biphenyl, drums of pesticides, waste fuel oil, and solvents. Minor leaks from the drums may have occurred.

A Feasibility Study was prepared and a Decision Document were prepared to support a "No Further Action" alternative in 1992. The site was subsequently closed and is now the site of Cirrus Design, Inc.

3.5 SITE 10: LOW-LEVEL RADIOACTIVE WASTE DISPOSAL

Site 10 (Low-Level Radioactive Waste Disposal) is located south of the security fence that surrounds Buildings 511 and 513, and north of the airport perimeter road. The site encompasses

approximately 3.5 acres which were used from 1952 until 1960 to dispose of low-level radioactive materials (e.g., cathode ray tubes, oscilloscopes, and radioluminous dials). These waste materials were disposed at the site in a 15-foot-deep by 40-foot-long trench and were covered with general refuse and local soil material.

The Remedial Investigation for this site was completed in 1992 and recommended a "No-Further-Action" response be initiated at this site.

3.6 SITE 17: BASE SUPPLY STORAGE AREA

Site 17 is located southeast of the Defense Reutilization and Marketing Office and warehouse (Building 125), in the southwestern corner of the airport. The site, which covers approximately 0.2 acres, includes an 80-foot wide by 120-foot long impervious storage pad. The site was used by the U.S. Air Force from 1977 until 1981 to store containers of fuels, lubricants, hydraulic fluids, and antifreeze. Upon the deactivation of U.S. Air Force activities at the airport, the title to the storage pad property was transferred to the Defense Reutilization and Marketing Office. They used the pad from 1981 until 1990 to store hazardous materials and wastes. In 1990, the Defense Reutilization and Marketing Office began storing hazardous materials and wastes in the base's permitted hazardous waste storage facility. Since 1990, the storage pad has been used to store nonhazardous materials (e.g., old tires and salvageable metal products). No spills have been reported at the site.

The Resource Conservation and Recovery Act Facility Assessment Sampling Visit Report stated that volatile organic compounds were detected in soil samples collected at the site, an oily layer was present in the soil below the ground surface, and stressed vegetation was observed immediately east of the site.

A Resource Conservation and Recovery Act Facility Investigation (similar to a Comprehensive Environmental Response Compensation and Liability Act Remedial Investigation) was conducted from January to April 1992 and completed in August 1992. The report concluded that the contaminants detected at the site did not pose a current public health threat, but did pose a slight hypothetical risk if institutional control of the site was eliminated. The report recommended additional investigation for Site 17. An Amendment to the Resource Conservation and Recovery Act Facility Investigation was completed in November 1993. A Corrective Measures Study for this site has been completed. Remedial Action is planned for Site 17.

3.7 SITE 18: HAZARDOUS WASTE STORAGE AREA

Site 18 consists of a 400-square foot ammunition storage building (Building 513) that is located on the north side of the main east-west runway. The storage building contains eight segregated storage bays. Building 513 was constructed by the U.S. Air Force in 1962 to store ammunition. Since the deactivation of U.S. Air Force activities at the airport in 1981, the Minnesota Air National Guard has used the building to store polychlorinated biphenyls, paints, solvents, adhesives, sealants, fuels, lubricants, oils, antifreeze, and pesticides.

A Resource Conservation and Recovery Act Facility Investigation was conducted from January to April 1992 and a report was completed in August 1992.

Mercury and lead were detected at levels in excess of background in soil samples collected at the site; all other metals were detected at concentrations lower than those in background samples. Toluene was the only volatile organic compound detected in soil samples collected at Site 18.

The principal contaminants detected in groundwater samples were chromium, mercury, and lead. Toluene, metals, and gross beta radiation were detected in surface water samples collected at the site. Volatile organic compounds, metals, gross beta radiation, and total petroleum hydrocarbons were detected in sediment samples.

The Resource Conservation and Recovery Act Facility Investigation Report concluded that the contaminants detected at the site did not pose a current or future public health threat. One confirmatory soil sample was collected at the site and analyzed as part of an amendment to the Resource Conservation and Recovery Act Facility Investigation that was completed in November 1993. A Corrective Measures Study has been prepared for this site. Remediation action for this site will be conducted concurrently with remediation at Sites 17, 19, 21, and 25.

3.8 SITE 19: POLYCHLORINATED BIPHENYL STORAGE FACILITY

Site 19 is located at Building 511, on the north side of the main east-west runway. The site, which covers approximately 1,600-square feet, consists of an undivided, earth-covered, corrugated-steel arch bunker. The bunker, which is approximately 25 feet wide and 64 feet long, was constructed by the U.S. Air Force in 1959 to store ammunition. A 6-inch high concrete curb was constructed along the perimeter of the floor slab inside the bunker. From 1981 until 1983, the U.S. Air Force used Building 511 to store polychlorinated biphenyls. The U.S. Air Force removed the

polychlorinated biphenyls from Building 511 before it was turned over to the Minnesota Air National Guard in 1983. From 1983 until 1990, the Minnesota Air National Guard used the building to store polychlorinated biphenyls, paints, solvents, adhesives, sealants, fuels, lubricants, oils, antifreeze, and pesticides.

A Resource Conservation and Recovery Act Facility Investigation was conducted from January to April 1992 and a report was completed in August 1992. Toluene, mercury, and total petroleum hydrocarbons were detected in soil samples collected at the site.

Mercury was the principal contaminant detected in groundwater samples collected at Site 19. Chromium and lead were also detected. Gross beta radiation was detected at levels above background levels. Metals, gross beta radiation and total petroleum hydrocarbons were also detected in surface water samples.

The Resource Conservation and Recovery Act Facility Investigation Report concluded that the contaminants detected at the site did not pose a current or future public health threat. The report recommended no additional investigation or corrective measures for Site 19. One confirmatory soil sample was collected and analyzed as part of an Amendment to the Resource Conservation and Recovery Act Facility Investigation that was completed in November 1993. The Minnesota Pollution Control Agency has recommended soil removal at this site before a Decision Document can be signed.

3.9 SITE 20: RUNWAY JOINT SEALING TAR DRUM DISPOSAL SITE

Site 20 (Runway Joint Sealing Tar Drum Disposal Site) was identified in 1988 during a Minnesota Pollution Control Agency inspection tour of the base. During the inspection tour, seventeen drums of runway joint sealing tar were discovered in a hollow located near one of the runways at the airport; it is not known when the drums were placed in the hollow. Neither the Air National Guard Readiness Center nor the base have any documentation for Site 20.

The base removed the drums in November 1988 and shipped the drums off site as hazardous waste in March 1991. A Removal Action Report and a Decision Document recommending "No Further Action" will be prepared for this site.

3.10 SITE 21: IMHOFF TANK TREATMENT SYSTEM

Site 21 (Imhoff Tank Treatment System) consists of a former tank treatment system that was located on the east side of the main east-west runway. The Imhoff Tank Treatment System provided primary and secondary sewage treatment for the base's industrial and administrative areas. The system, which was constructed in 1949, consisted of an Imhoff tank, sludge drying beds, and a biological filter bed. Liquid effluent was discharged from the treatment system through a 750-foot outfall pipe to Miller Creek. The tank treatment system was abandoned in 1969 after the City of Duluth connected the area to the municipal sewage system. Since that time, a concrete storage pad has been constructed on part of the area formerly occupied by the sludge drying beds and the biological filter bed. Two storage buildings were constructed on the concrete storage pad in 1989 or 1990. The remainder of the area formerly occupied by the biological filter bed now consists of open space covered with gravel; this area is used intermittently for vehicle parking. The Imhoff tank is covered by an earthen mound with a vegetative cover. No spills or releases of materials from these areas have been reported at the site.

A Resource Conservation and Recovery Act Facility Investigation was conducted from January to April 1992 and a report was completed in August 1992. Toluene, xylenes, phenanthrene, pyrene, lead, and total petroleum hydrocarbons were detected in soil samples collected at the site.

The principal contaminants detected in groundwater samples at Site 21 were trichloroethene and lead. Surface water samples were not collected at the site; volatile organic compounds, semi-volatile organic compounds, metals, and total petroleum hydrocarbons were detected in sediment samples.

The Resource Conservation and Recovery Act Facility Investigation Report concluded that the contaminants detected at the site did not pose a current public health threat, but did pose a slight hypothetical risk if institutional control of the site was eliminated. The report recommended additional investigation for Site 21. An Amendment to the Resource Conservation and Recovery Act Facility Investigation was completed in November 1993. A Corrective Measures Plan has been prepared and Remedial Action is planned at Site 21.

3.11 SITE 22: BUILDING 125 AND NONDESTRUCTIVE INSPECTION SHOP SEPTIC SYSTEM

Site 22 is located in the southwestern corner of the airport, near Building 125. The site encompasses approximately 1 acre and consists of two septic tank systems. The Building 125 septic tank system was installed in 1972 and was abandoned in 1991 when a sanitary sewer line was extended to the building. The septic tank system which serves the Nondestructive Inspection Shop, was installed in 1960 when that facility was constructed.

A Resource Conservation and Recovery Act Facility Investigation was conducted from January to April 1992 and a report was completed in August 1992. Toluene, barium, chromium and mercury were detected in soil samples at concentrations above those detected in background samples. Groundwater, surface water, and sediment were not sampled. A risk assessment concluded that the contaminants detected at the site did not pose a current or future public health threat. The Resource Conservation and Recovery Act Facility Investigation Report recommended no additional investigation or corrective measures for Site 22. A Decision Document recommending "No Further Action" has been prepared and submitted to the Minnesota Pollution Control Agency for concurrence.

3.12 SITE 23: AIRCRAFT PARKING RAMP

Site 23 is located at the Minnesota Air National Guard aircraft parking apron and taxiway. The site encompasses 10 acres and has been used from 1948 until the present for aircraft parking and refueling. Overfills and spills of aircraft fuel that occurred over the years may have infiltrated joints in the 1-foot thick concrete panels of the apron and taxiway and migrated into the soil below. The apron was reconstructed in 1991 and 1992. The reconstruction involved excavation of the soil to a depth of 5 feet. Because some of the excavated soil was contaminated, a portion of the soil was removed and stockpiled for remediation.

Three phases of investigation have been performed at Site 23. The first phase of investigation was completed in January 1990. Benzene, toluene, ethylbenzene, and xylenes were detected in soil samples collected at the site. The second phase of investigation was conducted in July 1990. Contaminants similar to those found in the first phase of investigation were detected in soil samples collected at the site. The third phase of investigation was conducted in December 1990. Total petroleum hydrocarbons were detected in soil samples. Toluene and xylenes were also detected in soil samples collected at the site.

The investigations (considered to be equivalent to a Site Investigation) were documented in an August 1990 Environmental Exploration Program Report and in an April 1991 Preliminary Potential Corrective Action Design. These reports stated that soil at the site was contaminated with total petroleum hydrocarbons at depths ranging from 3 to 15 feet below ground surface. Corrective action designs were evaluated, and excavation of contaminated soil and incineration of the soil in a mobile incinerator were recommended. A removal action was completed at Site 23 in September 1993. A Removal Action Report and a Decision Document recommending "No Further Action" will be prepared.

3.13 SITE 24: ENGINE RUN UP AND TEST PAD

Site 24 (Engine Run Up and Test Pad) is located on the northwest side of the northeast-southwest runway. The site encompasses approximately 14.5 acres and was used from 1956 until 1993 for the testing of aircraft engines. The site includes a 5,500-square-yard engine run up area and a 90-foot wide by 90-foot long concrete test pad. The test pad is surrounded by approximately 500 square yards of bituminous concrete. The site also includes an office (Building 106) and the engine run up facility (Building 225). The remainder of the site consists of a wetlands area and several vegetated areas that contain grasses, trees, and shrubs. The use of the site was discontinued in April 1993, when the aircraft Hush House (Building 270) became operational.

A Memorandum of Agreement between the Air National Guard Readiness Center and the Duluth Airport Authority, with concurrence from the Minnesota Pollution Control Agency, was signed in July 1992 and amended in December 1992. This agreement was prepared to support real estate transactions related to the construction of the Northwest Airbus Maintenance Facility at Duluth International Airport. This facility will be constructed on property that includes the location of Site 24. The agreement required that contaminated soil at Site 24 be excavated and treated on site using soil-roasting technology.

Under the Memorandum of Agreement, all contaminated soil was removed in areas containing halogenated volatile organic compounds in soil vapor samples at concentrations above background levels. Contaminated soil was defined in the Memorandum of Agreement as soil located at or above an elevation of 1,400 feet above the 1929 National Geodetic Vertical Datum or the elevation necessary to remove all contaminated soil, whichever occurred first. If no halogenated volatile organic compounds were found in soil vapor samples, contaminated soil was defined as soil with photoionization detector and jar headspace analysis results above 10 parts per million. After all of

the contaminated soil was excavated, soil samples were collected from the walls and the floor of the excavation and from all excavated soil stockpiles. These samples were analyzed for total petroleum hydrocarbons. Soil excavation continued until soil samples exhibited contaminant concentrations less than or equal to 50 parts per million of total petroleum hydrocarbons. The Duluth Airport Authority conducted the cleanup operation, and the Air National Guard Readiness Center provided the funds.

An investigation (considered to be an expanded Site Investigation) was conducted at Site 24 by the Duluth Airport Authority, in conjunction with the Air National Guard Readiness Center and the Minnesota Pollution Control Agency. The results of this investigation were documented in a March 1992 Addendum to the Environmental Property Assessment. Total petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylenes were detected in soil samples collected at the site. All concentrations of contaminants detected in soil samples collected at the site were below state-mandated cleanup standards, except for total petroleum hydrocarbons and xylenes. The Addendum concluded that soil contamination extended vertically to a maximum depth of 9 feet below ground surface and extended laterally as far as 40 feet from the concrete pad; the volume of contaminated soil at the site was estimated to be between 400 and 700 cubic yards. The Addendum recommended excavation of the contaminated soil and remediation of the soil by landspreading or roasting in a thermal treatment unit.

Approximately 900 cubic yards of contaminated soil were removed from Site 24 by the Duluth Airport Authority and were burned in an on-site mobile incinerator in September 1993, concurrently with the soil removal action conducted at Site 23. A Decision Document recommending "No Further Action" was prepared and the site was closed.

3.14 SITE 25: OLD MOTOR POOL AREA

Site 25 (Old Motor Pool Area), which was used from 1948 through 1975, consists of the Old Motor Pool Area, which includes Buildings 239, 240, and 242. The site consists of approximately 1.2 acres divided into five areas: the fenced Old Motor Pool Area; an abandoned 1,000-gallon unleaded-gasoline underground storage tank located at the corner of Building 231; the motor pool floor drains outfall, which extends east-southeast from the fenced area into an adjacent marshy area; two empty, abandoned 10,000-gallon steel underground storage tanks located west of Building 239 (one tank previously contained motor gasoline, and the other tank contained diesel fuel); and an empty, abandoned 500-gallon waste-solvent underground storage tank located in the southwestern corner of the fenced area. The tanks were removed.

Historically, spilled motor pool products were washed down the floor drains and into an adjacent swampy area. The investigation of Site 21 (Imhoff Tank Treatment System), which is located approximately 75 feet downgradient of the Old Motor Pool Area, has indicated that contamination from the Old Motor Pool Area may have migrated to Site 21. Occasional sightings of black substances in the discharge to the adjacent swampy area from the motor pool drains outfall have been reported by base personnel.

Site 25 was identified in a Preliminary Assessment that was completed in August 1993. The Preliminary Assessment recommended additional investigation for the site. A Site Investigation was completed in May 1995 and Remedial Action is planned in conjunction with Site 21 activities.

3.15 SITE 26: RAMP DISPOSAL AREA

Site 26 is adjacent to the aircraft ramp located west of Buildings 499 and 500. It encompasses an area of approximately 0.5 acres and was used in the 1960s and 1970s to store 55-gallon drums of contaminated aircraft fuel. Buckets of contaminated aircraft fuel were reportedly disposed onto the soil surface along the edge of the ramp.

Site 26 was identified in a Preliminary Assessment that was completed in August 1993. The Assessment recommended additional investigation for the site. A Site Investigation was completed in May 1995 and the preparation of a Decision Document recommending "No Further Action" is anticipated.

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4.0 AREA PROFILE

4.1 GEOGRAPHIC AND CLIMATIC CHARACTERIZATION

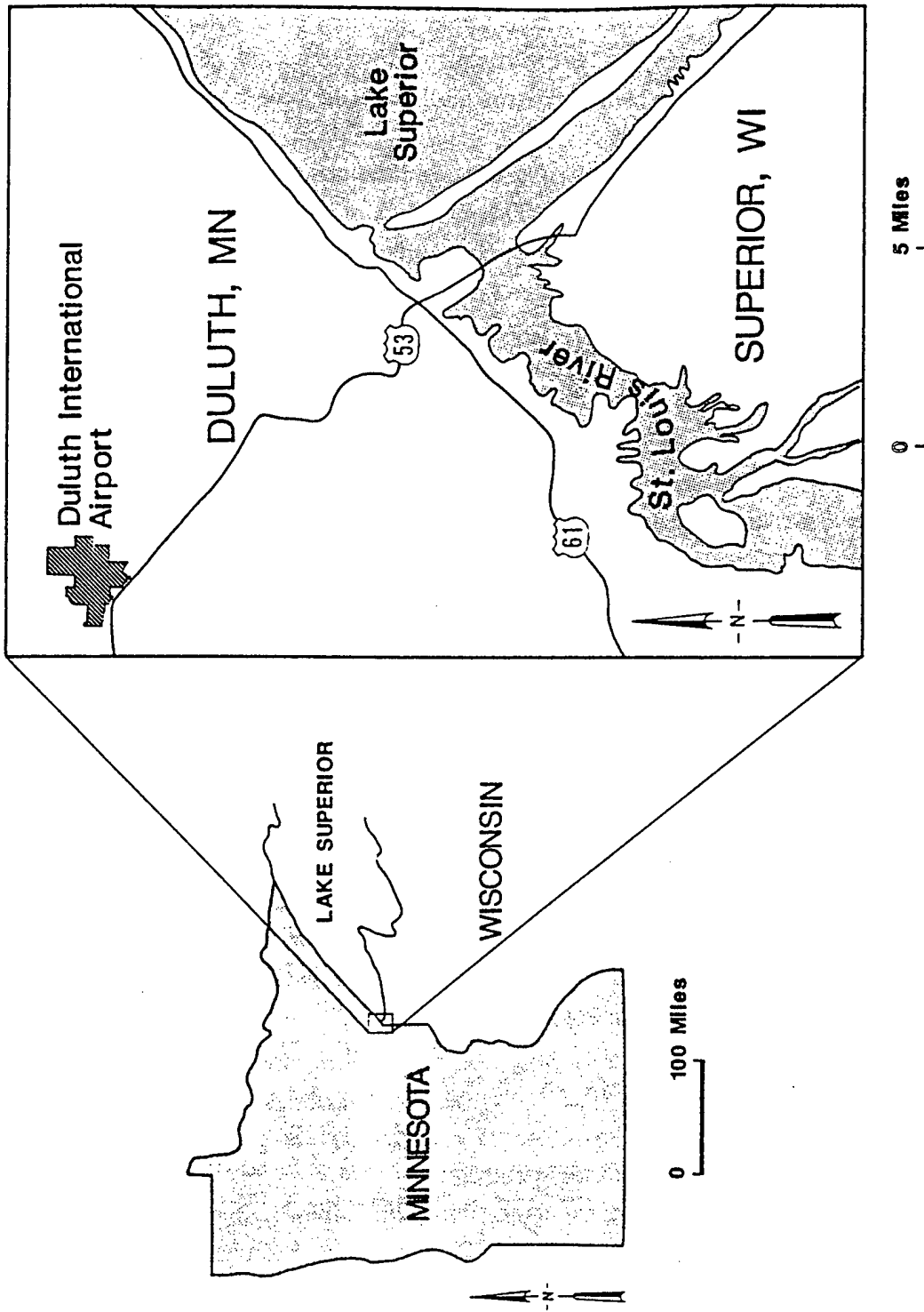
The Minnesota Air National Guard Base is located at the Duluth International Airport. The airport is located in St. Louis County in northeastern Minnesota, approximately seven miles northwest of the City of Duluth as shown on Figure 4-1. The airport is operated by the city.

The airport lies within the North Shore Highland Section of the Superior Upland Physiographic Province which is a dissected plateau with varied relief and prominent escarpments. Regional elevations of the North Shore Highland generally range from 900 feet above the National Geodetic Vertical Datum of 1929, overlooking Lake Superior west of Duluth, to 1,500 feet above the National Geodetic Vertical Datum at the Canadian border about 150 miles north of Duluth. Area relief is the result of glacial activity during the last, or Wisconsin, period of major glaciation which has covered the area bedrock with a relatively thin veneer of glacial drift.

As is typical of airfields, the Duluth International Airport has been subject to much earth moving which has affected topography and drainage. Pre-existing boggy areas have been filled in, small knobs have been lowered or removed, and drainage channels have been created. Each of the sites described in Section 3.0 is located on structural fill or otherwise disturbed ground.

The climate of the region is predominantly continental with significant local Lake Superior effects. Annual precipitation at the airport is 28.94 inches and consists of rain in the summer and snow in the winter.

The Duluth International Airport belongs to the St. Louis River Watershed of the Great Lakes Basin. The southeastern corner of this watershed north of the St. Louis River is drained by several small creeks which flow southeast and join the St. Louis River near its mouth. The rest of the watershed north of the river drains to the southwest and the smaller streams and tributaries join the St. Louis River along its upper reaches.



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ENGINEERING-SCIENCE, INC.

The airport lies on a drainage divide between the Midway River, Wild Rice Lake and Miller Creek. Drainage from the eastern and southern part of the airport drains east and south to Miller Creek which flows into the St. Louis River at St. Louis Bay. Drainage from the northern and western areas of the airfield drain north to Beaver Creek and an improved drainage ditch, both of which discharge into Wild Rice Lake. Wild Rice Lake is drained by the Beaver River and then the Cloquet River which joins the St. Louis River about 19 miles west of the airport. The Midway River drains much of the region southwest of the airport, but does not appear to drain the airport itself.

Duluth lies on the southern margin of the Superior Province of the Canadian Shield. This is a region of Precambrian sedimentary and igneous rocks that have been metamorphosed and deformed.

The area is underlain by crystalline bedrock belonging to the Duluth Complex. The bedrock is composed of various intrusive igneous rocks made of minerals which contain a large proportion of the heavier elements such as calcium, iron, and magnesium. These igneous rocks have been categorized on the basis of whether they are layered or massive, contain intrusions of other material, or contain predominant amounts of particular minerals.

The Precambrian bedrock of the Duluth area, and northern Minnesota in general, has been scoured by glaciers of Pleistocene age which removed any younger rocks overlying the Precambrian surface. The last glacial period, the Wisconsin, removed any evidence of prior glaciation and left behind a thin veneer of glacial till known as red-sandy till overlying the bedrock.

Two hydrogeologic units underlie the airport. One unit is the Duluth Gabbro within which groundwater is found in limited quantities in fracture zones. The other unit is the overlying glacial drift consisting of unsorted, nonstratified till, 10 to 60 feet thick within which groundwater generally occurs in limited quantities.

Because of their limited capacity to produce water and the availability of abundant surface water, the bedrock and glacial drift have not been developed extensively as aquifers in the Duluth area. The glacial drift, however, is used in rural areas for farm and domestic use by low production hand-dug or shallow-drilled wells. The quality of the groundwater in the St. Louis River watershed is generally considered the best in the state.

4.2 WILDLIFE

According to the August 1993 Preliminary Assessment Report, Canosia Wildlife Management Area, located 4.1 miles northwest of the base, is used as a nesting area by the Osprey, an endangered bird species. In addition, the Carolina Spring-Beauty and the Moschatel, which are endangered plant species, have been observed in two areas located 1.5 miles and 2.1 miles, respectively, southeast of the base; however, these observations were last made in the 1940s.

The Preliminary Assessment Report also indicates that the base and its surrounding areas are located within a major flyway for migrant birds. Traditional wildlife areas that support regional bird migrations are protected. In addition to Canosia Wildlife Management Area, there are several Sensitive Natural Areas and other Wildlife Management Areas in the vicinity of the base including:

- Moose Mountain Sensitive Natural Area,
- Hearing Island Wildlife Management Area,
- Interstate Island Wildlife Management Area, and
- Hemlock Ravine Sensitive Natural Area.

Wild Rice Lake, located 2.5 miles north of the base, is classified by the Minnesota Department of Natural Resources as a Protected Water. Antoinette Lake, located 2.75 miles northeast of the base, serves as the headwaters for the Amity River, which flows southeast into Lake Superior, and is also designated as a Protected Water. One perennial stream (Miller Creek) flows southeasterly across the southeast corner of the base and is designated by the state as a trout stream; however, it has not been restocked by the Minnesota Department of Natural Resources since 1973, according to the August 1992 Resource Conservation and Recovery Act Facility Investigation Report.

5.0 PUBLIC ENVIRONMENTAL ISSUES

The information contained in this section was gathered from face-to-face interviews with residents of the Duluth area. These public environmental interests reflect community concern with environmental issues in general, and the Air National Guard Installation Restoration Program at the Minnesota Air National Guard 148th Fighter Wing in particular. The interviews were conducted December 5-7, 1995. Appendix A contains a list of community citizens interviewed.

5.1 BASE/COMMUNITY RELATIONS

The mission of the Minnesota Air National Guard 148th Fighter Wing is to provide the best in air defense, service, and support to our state and nation in times of peace and war. The 148th Fighter Wing is managed on a day-to-day basis by a total of 331 full time officers and enlisted members. In addition, the 148th Fighter Wing has 622 traditional members for a total of 953 members who serve in "drill" or "part-time" status.

More than 30 million dollars per year goes into the local economy as the result of Minnesota Air National Guard 148th Fighter Wing salaries and local purchases. The 148th Fighter Wing's involvement with community activities includes:

- providing a minimum of 100 base tours annually to kindergarten through grade 12 classes,
- participating in the Duluth Christmas City of the North Parade,
- providing flag presentations on Veteran's Day,
- hosting various international dignitary tours,
- hosting "Leadership Duluth," a year long course for young Duluth business leaders,
- providing the "148th Men's Chorus" to sing the American and Canadian national anthems for public events,
- providing support for the Duluth area Boy Scout Council, and
- providing radio communications support for the John Bear Grease Sled Dog Race.

5.2 PUBLIC ISSUES

Of those people interviewed, very few had any prior knowledge of the Installation Restoration Program at the Minnesota Air National Guard 148th Fighter Wing. Individuals previously involved with the Duluth National Airport on a professional basis were somewhat informed of the nature of Air National Guard activities. In general, most of the interviewees were confident that the Air National Guard would correct environmental problems and that requirements of site cleanup would be met.

The majority of the people interviewed reported that the environmental manager of the 148th Fighter Wing as the most appropriate source of credible information about environmental cleanup at the base. This stems primarily from the visibility of the environmental manager through involvement in airport activities as well as the community's amicable view of the Air National Guard. Beyond direct contact with the Air National Guard, interviewees were likely to seek credible information from elected officials or the Minnesota Pollution Control Agency.

The overall perception for the Minnesota Air National Guard 148th Fighter Wing is good. There are some concerns with air traffic noise but in general the community's perception of the 148th Fighter Wing's presence is appreciative. A few interviewees indicated that the community was uninterested or assured that government activities would be best handled autonomously. Guard members are seen as part of the community while attending school functions and youth sporting events. Presentations of the 148th Fighter Wing at a local mall were noted by one interviewee.

All of the interviewees are concerned about environmental issues in the Duluth area. A portion of those interviewed are active members in local environmental groups. Several noted that Duluth area residents valued their proximity to the natural surroundings of northern Minnesota and Lake Superior. Residents are concerned about local issues such as wildlife habitats, land use, wetlands, and roadway deicing.

Most of the interviewees used major newspaper, television, and radio as their news source. A majority of interviewees felt that the major newspapers and television did an inadequate job of covering local environmental issues. Their belief is that these sources of news tend to sensationalize environmental news events, cover only hot topics and bias the coverage. Many of the interviewees felt that the small local newspapers and public radio provided better coverage of local environmental issues and were better at examining all parties involved. No one could recall

any news coverage of environmental activities at the base, while a few were familiar with past incidences of fighter planes dropping fuel tanks.

Hermantown and Rice Lake residents along with city council members were recognized as groups who might be interested in base environmental activities. The Clean Water Action group, Audobon Society, Sierra Club, Isaac Walton League and a local Miller Creek organization were all identified as environmental groups who would be interested in base activities. It was generally felt that news releases should continue to be posted in the paper while only a few felt that the 148th Fighter Wing should conduct public meetings, prepare printed materials, contact local environmental groups, or conduct additional outreach activities. The public library was the most suggested location to file written information and documents while a few suggested the historical library at the University of Minnesota Duluth campus or the Hermantown High School.

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6.0 SCHEDULED COMMUNITY RELATIONS ACTIVITIES AND TIMING

To meet the information desires of the community and to allow Duluth area residents to participate in the decision-making process, the Air National Guard will schedule community relations activities throughout the Installation Restoration Program process at the Minnesota Air National Guard base. These activities will comply with the community involvement requirements of the National Contingency Plan and the Comprehensive Environmental Response, Compensation and Liability Act, commonly called Superfund. The Air National Guard will review this Community Relations Plan throughout the Installation Restoration Program process to ensure that it continues to meet the public's information needs.

Community relations activities coincide with significant events in the Installation Restoration Program. The following information outlines the minimum community relations activities required by federal regulations. However, if the need for additional public participation activities occurs, other activities will be scheduled.

6.1 PUBLIC INFORMATION FILE

A Public Information File, also known as an Information Repository, is available for public review at the Duluth Public Library, Duluth Minnesota. This file contains general information on the Installation Restoration Program at the Minnesota Air National Guard Base. The file also includes specific project reports. As new information is released, this file is updated. A copy of this Community Relations Plan is also included in the file. (See Appendix B for the location of the Public Information Files.)

6.2 ADMINISTRATIVE RECORD

The Administrative Record contains all documents, letters, and correspondence that form the basis of the official decisions made during the Installation Restoration Program at the Minnesota Air National Guard Base. The Administrative Record is held at the Minnesota Air National Guard Base at the Duluth International Airport. An index of the Administrative Record's contents is included in the Public Information File available at the Duluth Public Library, Duluth, Minnesota.

6.3 PUBLIC COMMENT PERIODS

After completion of a Focused Feasibility Study, Feasibility Study, or Decision Document, the Air National Guard will hold a 30-day Public Comment Period. This comment period allows area residents to review and comment on the proposed plan of action.

6.4 PUBLIC NOTICES

After completion of a Focused Feasibility Study, Feasibility Study, or Decision Document, legal notices and display advertisements will be published in the local newspapers. These notices announce the proposed action, the dates of the Public Comment Period, the location of the Public Information File and an address to submit comments.

6.5 PUBLIC MEETINGS

During Public Comment Periods for Focused Feasibility Studies and Feasibility Studies, the Air National Guard may hold public meetings in order to inform the public and seek comment and participation. The Air National Guard will consider this information when deciding which remedial actions to pursue.

When a Remedial Action Plan is discussed at a public meeting, a court reporter will be present to record all words spoken during the presentations and comment periods. The meeting transcript will be available for public review. Public meetings are announced through legal notices and display advertisements in the local newspapers.

6.6 RESPONSIVENESS SUMMARIES

The Air National Guard will prepare a summary of the written and oral comments made by the public during any public comment period or public meetings. This summary includes the response of the Guard to those comments. The Responsiveness Summary, available for review in the Public Information File, explains how the Air National Guard considered the public input in reaching a final decision. If, because of public opinion, the Air National Guard makes major changes to the initial plan of action, the Air National Guard will hold a second public comment period.

Availability of the Responsiveness Summary is announced through legal notices and display advertisements in the local newspapers.

6.7 PUBLIC BRIEFINGS

At certain times during the Installation Restoration Program activities, the Air National Guard may conduct public briefings to discuss continuing restoration activities.

6.8 FACT SHEETS

When appropriate for public meetings or public comment periods, the Air National Guard will issue fact sheets to describe activities and progress at the Minnesota Air National Guard base. These fact sheets are available in the Public Information File and at public meetings. The fact sheets are distributed to individuals and organizations on the mailing list. (See Appendix C for the current mailing list.)

6.9 MAILING LIST

The Air National Guard has compiled an initial mailing list of individuals and organizations interested in Installation Restoration Program activities at the Minnesota Air National Guard base. Other individuals and organizations that wish to be included in mailings should contact the Base Environmental Coordinator, Captain Steve Wabrowetz, at the Duluth Air National Guard, (218) 723-7475. (See Appendix C for the current mailing list.)

6.10 RESTORATION ADVISORY BOARD

If public concern is great, area residents have the opportunity to form a Restoration Advisory Board. This Board will review the technical information developed during and following the Remedial Investigation. A Restoration Advisory Board would provide an open forum for discussion and exchange of information. The Board would be co-chaired by a Minnesota Air National Guard representative and a representative from the Duluth area. If the time comes when this Board would be appropriate, the Minnesota Air National Guard will facilitate the gathering of such a group.

6.11 FOR ADDITIONAL INFORMATION

The point of contact for all inquiries related to Installation Restoration Program activities at the Minnesota Air National Guard is:

Captain Steve Wabrowetz
Environmental Coordinator
Minnesota Air National Guard
4680 Viper Street
Duluth, MN 55811-6033

Telephone: (218) 723-7475

Appendix A

**INSTALLATION RESTORATION PROGRAM
COMMUNITY RELATIONS PLAN
INTERVIEWEE LIST**

The following individuals were interviewed during the preparation of this Community Relations Plan. The Minnesota Air National Guard recognizes their individual contributions to this effort and appreciates their involvement.

Henry Storms
Asst. Director for Operations,
City of Duluth Airport Authority

Sonny Myers
Biological Services Director, 1854 Authority

John Hitchcock
Director, Cirrus Design Corporation

Brenda Winkler
Minnesota Pollution Control Agency

John Klaers
City Planner, City of Hermantown

Mark Rys
Minnesota Pollution Control Agency

David Allen
City Councilor, City of Hermantown

Rosie Loeffler-Kemp
Clean Water Action

John Mohn
Senior Planner, City of Duluth

Bob Hedburg
Izaak Walton League

Debbie Ortman
Private Citizen

Art Pulford
Executive Assistant, Federal Prison Camp

John Ameal
Assistant Scientist, Natural Resources
Research Institute

Jim Curtis
Owner, Curtis Oil & Tire

Appendix B

**INSTALLATION RESTORATION PROGRAM
INFORMATION REPOSITORIES**

The public information files for the Minnesota Air National Guard Installation Restoration Program are held at:

Duluth Public Library
520 West Superior Street
Duluth, Minnesota 55802

Telephone: (218) 723-3821

Hours of operation: Monday through Thursday 10:00 AM to 8:30 PM
 Friday 10:00 AM to 5:30 PM
 Saturday 10:00 AM to 4:00 PM

Library Contact: Chris Aho

Minnesota Air National Guard
148th Fighter Wing
4680 Viper Street
Duluth, Minnesota 55811

Telephone: (218) 723-7475

Hours of Operation: Monday through Friday 7:30 AM to 4:00 PM

Point of Contact: Captain Steve Wabrowetz

Appendix C

**INSTALLATION RESTORATION PROGRAM
MAILING LIST**

The following individuals, agencies and organizations comprise the initial mailing list. These individuals and organizations will receive information, as it becomes available, on Installation Restoration Program activities at the Minnesota Air National Guard 148th Fighter Wing base. Other individuals or organizations wishing to be included on the mailing list should contact Capt. Steve Wabrowetz at (218) 723-7475.

Henry Storms
Asst. Director for Operations
Duluth Airport Authority
4701 Airport Drive
Duluth, MN 55811

John Hitchcock
Director
Cirrus Design Corporation
4515 Taylor Circle
Duluth, MN 55811

John Klaers
City Planner
City of Hermantown
5255 Maple Grove Road
Hermantown, MN 55811

David Allen
Allen and Associates
Suite 510F
325 Lake Avenue South
Duluth, MN 55802

John Mohn
Senior Planner
City of Duluth
409 City Hall
Duluth, MN 55802

Debbie Ortman

Art Pulford
Executive Assistant
Federal Prison Camp
P.O. Box 1400
Duluth, MN 55814

John Ameal
Assistant Scientist
Natural Resources Research Institute
5013 Miller Trunk Highway
Duluth, MN 55811

Jim Curtis
Curtis Oil & Tire
4995 Miller Trunk Highway
Duluth, MN 55811

Sonny Myers
Biological Services Director
1854 Authority
1908 1/2 West Superior Street
Duluth, MN 55806

Brenda Winkler
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Mark Rys
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Rosie Loeffler-Kemp
Clean Water Action
394 Lake Avenue South
Duluth, MN 55802

Bob Hedburg
Izaak Walton League
5802 Old Miller Trunk
Duluth, MN 55811

Appendix D

**INSTALLATION RESTORATION PROGRAM
GLOSSARY**

Comment Period: A period, usually 30 days when members of the public review and comment on specific documents or proposed actions.

Comprehensive Environmental Response, Compensation and Liability Act: A federal law, often called Superfund, enacted by Congress in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act.

Decision Document: A formal published record of a significant decision made regarding an Installation Restoration Program site. Decision Documents are prepared when a site requires "No Further Action" or when a site remediation method has been selected.

Focused Feasibility Study: The Focused Feasibility Study is used to select the most appropriate remedial alternative for a site, to prepare cost estimates, and to initiate the remedial design. When circumstances limit the number of available options, and therefore the number of available alternatives developed, a Focused Feasibility Study, focusing on two or three alternatives, may be applicable. The Focused Feasibility Study is not a normal or routine step in the Installation Restoration Program.

Groundwater: Water found below the land surface in the zone of saturation. Groundwater may be used as a source of water for artesian wells and springs.

Hydrogeologic Study: The study of the geology of groundwater, with particular emphasis on the chemistry and movement of water.

Information Repository: A place where current information, technical reports and reference documents concerning an Air National Guard Installation Restoration Program site are stored. The Information Repository, usually in a public library near the installation, is available for public access and review.

Installation Restoration Program: A Comprehensive Environmental Response, Compensation and Liability Act-based environmental restoration program. It was established to identify, assess, investigate and clean up hazardous waste at past disposal and spill sites.

Monitoring Well: A groundwater well used to collect groundwater samples for water quality analysis or to measure groundwater levels. A monitoring well can also be a well drilled at a hazardous waste site to collect groundwater samples for the purpose of physical, chemical, or

biological analysis to determine the amounts, types and distribution of contaminants in the groundwater beneath or migrating from a site.

National Contingency Plan: The Environmental Protection Agency's National Oil and Hazardous Substances Pollution Contingency Plan, the operating rules for Superfund cleanups. Site cleanup must conform to the Plan.

Preliminary Assessment: The first phase of the Air National Guard's Installation Restoration Program. It consists primarily of past and present installation employee interviews and a thorough review of operational and historic records of the installation. This assessment discovers if potential contamination exists on the installation. If further study is needed, a Site Investigation is conducted.

Remedial Action: The actual construction or implementation of the remedy selected to contain, control or remediate an identified site. This action follows the Remedial Design phase of the Installation Restoration Program.

Remedial Design: The development of technical specifications and engineering design necessary to carry out a Remedial Action.

Remedial Investigation/Feasibility Study: Investigation and analytical studies conducted at an Installation Restoration Program site. The investigation and study fully define the type and extent of the contamination, establish criteria for remediating the site, identify and screen potential alternative remedies, and analyze the technologies and costs related to each potential alternative remedy.

Remedial Measure: An action taken to remediate or control contamination.

Superfund Amendments and Reauthorization Act: A federal law enacted by Congress in 1986. The Superfund Amendments and Reauthorization Act amended the Comprehensive Environmental Response, Compensation and Liability Act of 1980. This Act set cleanup standards that strongly favor permanent remedies, gives the Environmental Protection Agency more control over cleanup procedures and involves states and the public in the cleanup decision-making process. This Act set health and safety standards for workers at hazardous waste cleanup sites.

Site Investigation: The second phase of the Installation Restoration Program. A Site Investigation begins if the Preliminary Assessment suggests the existence of contamination at a particular site. This second phase involves on-scene inspection and sampling of soil, surface water and groundwater. The samples are analyzed to confirm the presence or absence of contamination.

Superfund: The Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act. The Act established a special tax that helps pay for the investigation and remediation of certain abandoned or uncontrolled hazardous waste sites. The fund is used when the party or parties responsible for the contamination cannot be found or are unwilling or unable to pay for site restoration.

Surface Water: Ground-level bodies of water, such as rivers, lakes and streams.

U.S. Environmental Protection Agency: The primary federal agency responsible for enforcement of federal laws protecting the environment.